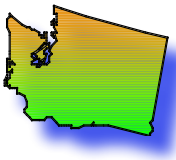
Washington R&D 2008

Meeting the Global Challenge for Innovation

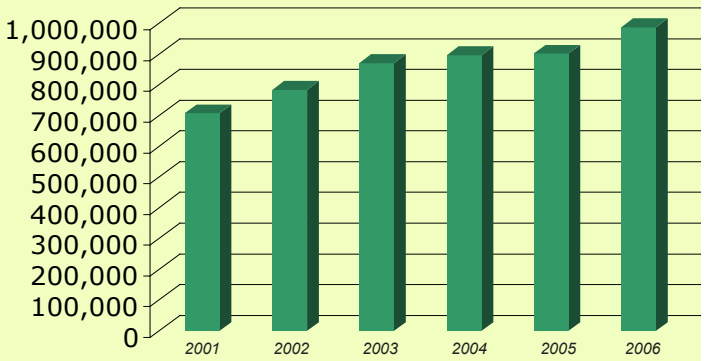


America's innovation future requires more federal investment in basic scientific research. Overall scientific research and development (R&D) promotes economic development, job growth, national security, competitiveness and global leadership. America's innovation future requires more federal investment in basic scientific research. U.S. leadership continues to narrow across a broad range of indicators when compared to the rest of the world.

An estimated 73% of all patents granted in the U.S. are attributable to scientific research initially funded by taxpayers through the federal government, especially university research operations.

Washington contractors earned $1.54 billion in federal R&D contract expenditures in FY 2007, with approximately 270 prime contractors involved. This amount *does not include federal grants and loans for R&D activities*. Information and charts on this page demonstrate the importance of federal investment in R&D to Washington's economy, and its future in the global marketplace.

Federal R&D Funding to Washington Colleges & Universities FY 2001-2006 ($ thousands)



SOURCE: National Science Foundation/Division of Science Resources Statistics, *Survey of Research and Development Expenditures at Universities and Colleges, FY 2006.*

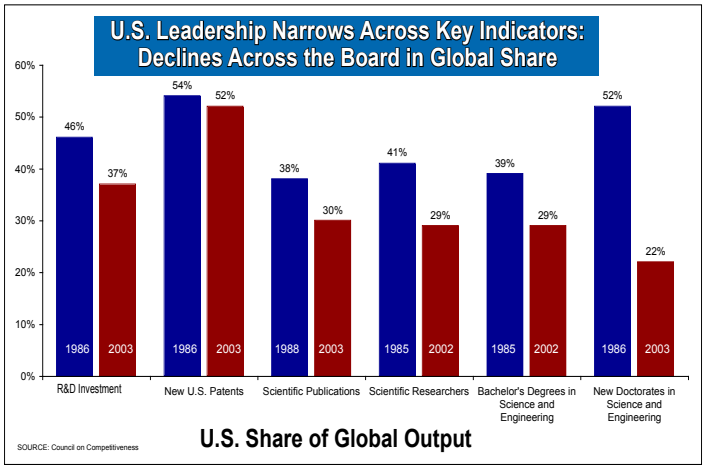
For more information and explanations of the summary data sets presented on this page, ASTRA Members can contact ASTRA with specific requests. Contact rboege@comcast.net for details.

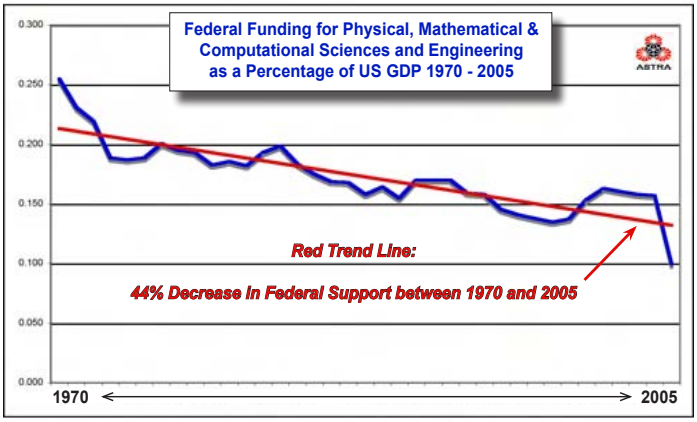
Top 5 Known Washington Congressional Districts Where Federal R&D Contracts Performed FY 2007*

Washington 9 (Adam Smith)	$513,001,289
Washington 4 (Richard "Doc" Hastings)	$209,069,143
Washington 7 (Jim McDermott)	$81,001,588
Washington 1 (Jay Inslee)	$22,715,994
Washington 8 (David G. Reichert)	$10,101,943

Key Reports and On-line Resources:

- ***ASTRA's Riding the Rising Tide*** is a 14-Point Policy Framework for regaining America's scientific & technology lead. A comprehensive set of analytical tools and reports on innovation and R&D policy are also found at **www.usinnovation.org** and **www.aboutastra.org**, the two ASTRA Web Sites.
- The **Science-Engineering-Technology Working Group (SETWG)** sponsors the annual Congressional Visits Day Program See **www.setcvd.org/cvd2008/**
- The **American Chemical Society's** Science Policy resource Site is **www.acs.org**
- ***Science & Engineering Indicators 2008,*** published by the National Science Board, provides a broad base of quantitative information on the U.S. and international science and engineering enterprise. **See www.nsf.gov/statistics/seind08/**





Sources: Compiled by ASTRA from National Science Foundation, *Federal Funds for Research and Development* series; GDP data from the Bureau of Economic Statistics, U.S. Dept. of Commerce. R&D Figures are for Basic and Applied Research only. Development and R&D facilities are not classified by discipline.

Top 10 Recipients of Federal R&D Contracts[1] Performed in Washington FY 2007*

BATTELLE MEMORIAL INSTITUTE	$666,895,337
BOEING COMPANY (unknown parent group)	$429,698,187
WASHINGTON GROUP INTERNATIONAL	$204,783,700
BOEING COMPANY	$102,688,115
UNIVERSITY OF WASHINGTON INC	$41,903,790
SEATTLE BIOMEDICAL RESEARCH INSTITUTE	$8,315,459
FRED HUTCHINSON CANCER RESEARCH CNTR.	$8,175,674
ACULIGHT CORP.	$8,137,360
REGENTS OF THE UNIVERSITY OF MINNESOTA	$5,542,623
NLIGHT PHOTONICS	$5,526,589

1. *R&D contract amounts do not include all management fees for Government-Owned, Contractor-Operated (GOCO) facilities under OMB definitions.*

Top 5 Federally-Funded R&D Products or Services Sold in Washington FY 2007*

Environmental Sciences — Basic Research (R&D)	$656,185,450
Weapons — Advanced Development (R&D)	$455,584,886
Nuclear — Management and Support (R&D)	$204,783,700
Defense Electronics and Communication Equipment — Basic Research (R&D)	$48,846,311
Biomedical — Basic Research (R&D)	$30,120,942

* *Sources:* The sources of this data include a variety of federal government agencies, including the U.S. Office of Management & Budget and the National Science Foundation.

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How Washington Ranks 2008

Rank	General Demographic & Economic Indicators	Washington	Total U.S.
13	Population as of July 1, 2007	6,468,424	302,045,000
14	Civilian labor force, 2005 (thousands)	3,292	150,717
17	Personal income *per capita*, 2005 ($)	$35,234	$34,495
14	High Tech Employment, 2005	156,524	5,627,326
4	High Tech Wages, 2005 ($)	$83,655	$75,501
17	High Tech Establishments, 2005	6,778	332,976
14	Gross Domestic Product, 2006 ($ billions)	$294	$13,149
6	R&D *per capita*, 2004 ($)	$1,762	$980
31	High Tech Jobs Gained/Lost in State 2000 - 2005	— 9,499	— 955,703
38	Unemployment Rate, 2006 (percent)	5.0%	4.6%
Rank	**Academic Indicators & Degree Production**		
19	S&E Doctorates Awarded, 2005	495	27,974
24	S&E and Health Graduate Students, 2005	7,094	527,767
13	Federal R&D Expenditures at Universities & Colleges, all sources, FY 2006 ($ thousands)	$783,341	$30,033,156
24	State & Local Govt. R&D Expenditures at Universities & Colleges, FY 2006 ($ thousands)	$42,391	$3,016,240
13	Industry R&D Expenditures at Universities & Colleges, FY 2006 ($ thousands)	$59,838	$2,427,627
26	Institutional R&D Expenditures at Universities & Colleges, FY 2006 ($ thousands)	$116,419	$9,062,058
35	Expenditures per pupil for elementary and secondary public schools ($)	$7,717	$8,701
Rank	**Workforce Indicators**		
21	Industrial Diversity 2004 (Herfindahl Index, indicating degree of diversity within State's traded sector)	.054	—
2	High Tech Workers *per* 1,000 Private Sector Workers, 2005 (Employment Concentration)	69.11	50.86
15	High Tech Employment Change, 2004-2005 (percent)	2.96%	1.58%
10	High Tech Payroll, 2005 ($ millions)	$13,094	$424,869
Rank	**R&D Spending by Source, R&D Indicators, Awards, & Patents**		
5	Private R&D *per* Worker 2003 ($)	$2,937	—
12	SBIR Grants Awarded, 2000-2005	770	33,289
8	Gross License Income *per* Worker 2003 ($)	$10.47	—
6	Industry R&D, 2004 ($ millions)	$8,840	$201,131
15	Academic R&D, 2005 ($ millions)	$901	$45,725
11	Broadband Access (Residential high-speed lines *per capita* within State)	0.14	—
11	Patents issued to state residents *per* million workers, 2005	2,291	89,795
46	Businesses Created from University R&D (# of spin-outs *per* $1 billion spent) 2001-2003	3.48	—
Rank	**Venture Capital & Entrepreneurial Indicators**		
9	Percent Change in Venture Capital Investments, 2000 - 2005 (percent)	— 64%	— 76%
5	Venture Capital Investments in 2006 (millions of 2006 $)	$1,012.1	$25,505
5	Venture Capital Numeric Change 2005 - 2006 (millions of 2006 $)	$197.7	$2,790
6	*Economic Dynamism - 2007 State New Economy Index* (measures 6 aspects of dynamism)	12.53	10.0
4	Overall *State New Economy Index Score 2007*	84.6	62.1

Sources: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Commerce, Census Bureau; National Science Foundation/Science Resources Study Division; U.S. Bureau of Labor Statistics; National Venture Capital Association www.nvca.org; U.S. Patent & Trademark Office; U.S. Office of Management & Budget; U.S. Small Business Administration; Association of University Technology Managers, Inc., *AUTM Licensing Survey: Fiscal Years 2001-2003*; Ewing Marion Kauffman Foundation www.kauffman.org; Information Technology & Innovation Foundation www.itif.org.

*** rankings include the District of Columbia*

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